

**Clean Version of Amended Claims**

**Pursuant to 37 C.F.R. § 1.121(c)(1)(ii)**

1. (Four times amended) A method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate in *E. coli* expressing a *phbA* thiolase gene encoding an enzyme that converts butyryl-CoA and acetyl CoA to beta-ketohexanoyl-CoA, a *phbB* reductase gene that encodes an enzyme that converts beta-ketohexanoyl-CoA to beta-hydroxyhexanoyl-CoA, and a *phbC* polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl CoA, the improvement comprising expressing in the *E. coli* a D-specific enoyl-CoA hydratase and  $\beta$ -hydroxyacyl-ACP-coenzymeA transferase, and providing feedstocks for the transgenic *E. coli*, wherein the enzymes are expressed in a sufficient amount to produce polyhydroxybutyrate-co- polyhydroxyhexanoate.

6. (Two times Amended) The method of claim 1 wherein the *phbC* polymerase gene encoding a PHA polymerase enzyme that incorporates C<sub>6</sub> substrates is incorporated into the bacterial chromosome.

7. (Twice amended) The method of claim 1 wherein the *phbC* polymerase gene is from a bacteria selected from the group consisting of *Aeromonas caviae*, *Comamonas testosteroni*, *Thiocapsia pfenigii*, *Chromatium vinosum*, *Bacillus cereus*, *Nocardia carolina*, *Nocardia salmonicolor*, *Rhodococcus ruber*, *Rhodococcus rhodocrous*, and *Rhodospirillum rubrum*.

10. (Three times Amended) The method of claim 1 wherein the genes encoding the D-specific enoyl-CoA hydratase and  $\beta$ -hydroxyacyl-ACP-coenzymeA transferase are isolated from

a bacterium selected from the group consisting of *R. eutropha*, *Klebsiella aerogenes*, *P. putida*, and *Aeromonas caviae*.

14. (amended) The method of claim 11 wherein the *E. coli* expresses a broad range reductase that is active on C<sub>6</sub> substrates.

15. (twice amended) The method of claim 11 wherein the *E. coli* expresses a polymerase that accepts 3-hydroxyhexanoyl CoA and 3-hydroxybutyryl CoA.

16. (amended) The method of claim 11 wherein the *E. coli* expresses a thiolase accepting acetoacetyl CoA.

17. (amended) The method of claim 11 wherein the *E. coli* expresses an enzyme selected from the group consisting of thiolases specific for 3-ketohexanoyl CoA, reductase active on 3-ketohexanoyl CoA, and 3-hydroxyhexanoyl CoA.

18. (amended) The method of claim 8 wherein the *E. coli* expresses one or more fatty acid biosynthetic enzymes.

19. (amended) The method of claim 18 wherein the fatty acid biosynthetic enzymes convert acyl ACP to acyl CoA.

20. The method of claim 19 where the enzymes are selected from the group consisting of ACP-CoA transacylase, acyl ACP thioesterase, and acyl CoA synthase.

21. The method of claim 20 wherein the enzymes are acyl ACP thioesterase and acyl CoA synthase.